VANCOUVER WATER STATION #1
PRELIMINARY CLOSE OUT REPORT

PURPOSE

This Preliminary Close Out Report documents that the U.S. Environmental Protection Agency (EPA) completed construction activities at the Vancouver Water Station #1 (WS1) site in accordance with *Procedures for Completion and Deletion of National Priorities List Sites* (OSWER Directive 9320.2-09). EPA and the Washington Department of Ecology (Ecology) have determined that the City of Vancouver has constructed and is operating the remedy in accordance with plans and specifications, and no further response is anticipated. The remedial action taken at this site was completed prior to the site's listing on the National Priorities List (NPL). Subsequent investigation by EPA determined that no additional remedial action could be taken and therefore no further response under Superfund was necessary. The Record of Decision (ROD) for WS1 required no further remediation or construction beyond what the City constructed prior to NPL listing, therefore there was no prefinal inspection. EPA and the City of Vancouver have initiated the activities necessary to achieve performance standards and site completion.

SUMMARY OF SITE CONDITIONS

Site Location and Description

Water Station 1 (WS1) is a public water supply wellfield made up of ten production wells. It lies within Waterworks Park in the city of Vancouver, Washington. WS1 is near the center of the city, approximately .75 miles east of Interstate 5 and approximately two miles north of the Columbia River. The site is adjacent to commercial districts as well as residential areas.

Site History

The wellfield at WS1 has been owned by the City of Vancouver for over 60 years. Water from WS1 is blended together with water from several other wellfields to provide drinking water to the Vancouver region. The combined water supply system provides drinking water to approximately 150,000 people throughout the Vancouver area. Approximately half of the total water system production is supplied by WS1. The maximum production capacity of the wellfield is 27 million gallons per day.

As a public drinking water supplier, the City of Vancouver is required under the federal Safe Drinking Water Act (SDWA) and associated regulations to monitor the quality of its drinking water. The City began monitoring water from WS1 and its other wellfields for volatile organic compounds (VOCs) in March, 1988. Results of the monitoring indicated a persistent

presence of tetrachloroethene (PCE) in the groundwater.

In July, 1989, the City of Vancouver initiated field investigations to determine if there was a source or sources of PCE or other VOCs near WS1. These investigations included soil gas surveys and groundwater sampling. The following month, EPA supplemented the City's search for sources by doing additional field investigation work . At that time, no apparent source of the wellfield contamination was identified. While the investigations were underway, in 1991 through 1992, monitoring of the production wells themselves showed a trend of continuing and possibly increasing concentrations of PCE in WS1 groundwater. The City therefore decided to install an air stripping system at WS1 to remove PCE from its drinking water supply. In May, 1993, five air stripping towers were brought on line. Although the air stripping system was effectively removing PCE from water that the City distributed for drinking water, in June 1993 EPA proposed WS1 for listing on the NPL because of the presence of PCE in the groundwater (the maximum detected PCE concentration of 30 ppb was reported in June 1993). WS1 was then placed on the NPL in June, 1994.

After the installation of the air stripping treatment system in 1993, EPA's funding constraints led to a decision by EPA to postpone further investigation of WS1. At the time that decision was made, the air stripping treatment system was reducing levels of PCE to below detection limits, thus the immediate threat to human health had been eliminated. EPA was then able to direct its limited funds to sites with greater risks.

The City had been operating the air strippers successfully for approximately four years when money became available in July, 1997, for EPA to once again focus its attention on WS1 and continue with the RI/FS. EPA based its approach to the RI/FS on the assumptions derived from earlier investigations that there was a low likelihood of finding a source area that could be remediated; that the cost of trying to locate sources would be too high and even if an additional source area could be located, it was unlikely that there would be something to remediate; and, that the need for the continued operation of the existing treatment system was not likely to change. Therefore, no additional active investigation into potential sources was conducted during the RI/FS. However, there was a substantial amount of groundwater data available from ongoing, routine monitoring of production wells conducted by the City. Data were also available from EPA's sampling of the groundwater monitoring wells in 1992, 1997 and 1998. These data show that levels of PCE are decreasing in the groundwater at and near WS1. For example, the maximum average concentration of PCE in the production wells was 7.2 ppb in April, 1992. During 1997, however, the average concentration in the production wells had decreased to 1.8 ppb. In 1992, maximum concentrations in single wells were routinely reported in the range of 10 to 20 ppb (with a maximum detection of 30 ppb). During 1997 there were occasional detections above 5 ppb, with a maximum concentration in one well of 9 ppb.

RECORD OF DECISION

Since neither a source nor a plume of PCE entering the wellfield has been identified at

WS1, the scope of the response action was limited to the following:

- ensure that human health was protected by reducing the level of PCE in drinking water produced from WS1 to meet federal and state drinking water standards; and

- reduce the concentration of PCE in the groundwater to below the MCL of 5ug/l.

The ROD was signed on September 11, 1998, more than five years after the installation of the air stripping treatment system. The continued operation of the existing treatment system along with monitoring is the selected final remedial action for this site. The system has been proven to be efficient and effective in removing VOCs including PCE from the drinking water. By extracting and treating large volumes of groundwater for drinking water, WS1 acts as a very large pump-and-treat system for removing contaminants from the aquifer near WS1. Eventually, it is anticipated that the extraction of groundwater will flush out residual contaminants in the wellfield, although the time to achieve the remedial action objectives is not known.

COSTS

WS1 is a Fund-lead site, however, the costs to design, build and operate the air stripping treatment system were paid for using both state and city money. According to the City of Vancouver, the air stripping system cost $4 million to design and build, while operating costs are estimated to be approximately $60,000 per year.

SCHEDULE FOR SITE COMPLETION

EPA and the City of Vancouver plan to enter into a Memorandum of Agreement (MOA) in order to implement the requirements of the ROD. It is expected that the MOA will document a commitment by the City of Vancouver to continue to operate the air stripping treatment system into the foreseeable future and to conduct the necessary monitoring. The MOA will be completed by no later than June 30, 1999.

In accordance with the requirements of the federal Safe Drinking Water Act and other regulations, the City is required to monitor its drinking water. On-going monitoring data will be submitted to EPA, at a minimum, on a yearly basis.

A Final Close Out Report will have to be prepared upon completion of this remedy. Since it was not possible to do a source control remedy and the sources of contamination continue to be unknown, it is difficult to estimate when groundwater cleanup levels will be attained. Therefore, the assumption is that the treatment system will have to operate for 30 years. Final deletion of the site is then anticipated in 2028.

FIVE YEAR REVIEW

The air stripping treatment system began operating in 1993. The remedial investigation conducted in 1998 confirmed the continuing presence of PCE in the groundwater above health-based levels. In accordance with CERCLA Section 121(c) and as provided in OSWER Directive 9355.7-02, *Structure and Components of Five-Year Reviews,* May 23, 1991, and OSWER Directive 9355.702A, *Supplemental Five-Year Review Guidance,* July 26, 1994, EPA will conduct a statutory five-year review at WS1. Since the 1998 remedial investigation also served to document the fact that the remedy remains protective, the next five-year review will be completed prior to September 2003 (five years after completion of the RI/FS and the ROD).

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9/25/98
Date